UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1 New England
Office of Environmental Measurement and Evaluation
11 Technology Drive, North Chelmsford, MA 01863

Inspection Report

Date: September 30, 2013
Subj: GenOn Kendall, LLC subsidiary of NRG Energy Cambridge, MA
Inspector: Daniel Granz, EIA
To: George Harding, OES

Facility information

GenOn Kendall, LLC subsidiary of NRG Energy
265 First Street
Cambridge, MA 02142
Facility contact: Robert Richards / Environmental Engineer / (617) 679-4818
Facility contact: Shawn Konary / Director of Environmental Affairs / (617) 529-3874, contacted by phone
Facility contact: Curt Reynolds / Maintenance Manager
Facility responsible official: Alan Murphy / Plant Manager (617) 679-4803

Background information

Date of inspection: September 4, 2013
USEPA representatives: Dan Granz, Erin Trainor
State representatives: none
Previous enforcement action: Administrative Order issued on January 31, 2011 to purchase and install an air-cooled condenser and back pressure steam turbine in order to meet the limits contained in the facility's 2010 NPDES permit
Purpose of inspection: conduct compliance evaluation inspection

Facility Description & Inspection Findings

On September 4, 2013, Dan Granz and Erin Trainor of the US Environmental Protection Agency, Investigations and Analysis Unit visited GenOn Kendall, LLC a subsidiary of NRG Energy in Cambridge, MA to conduct a NPDES compliance evaluation inspection. The inspection was unannounced. We presented our EPA credentials and provided a copy of the EPA Small Business Resource information sheet. The facility representatives were: Robert Richards, Environmental Engineer, Shawn Konary, Director of Environmental Affairs, Curt Reynolds, Maintenance Manager, and Alan Murphy, Plant Manager.

The facility is a 256 mega watt power generating facility producing electricity and steam for the market. There are approximately 40 employees and the facility operates 24 hours

E.P 10/30/13

per day. Currently natural gas is used to power the two boilers and low sulfur diesel fuel is used to power the one Pratt & Whitney jet turbine for producing electricity. There are 3 steam turbines for producing electricity. Depending on market price, the facility has the option to burn #6 fuel oil to power the two steam boilers. There are 2 additional steam boilers permitted and operated by Veolia for the Cambridge steam side of the property.

The facility was undergoing major repairs from April 27 to the middle of August 2013. The day of the inspection the facility was not generating steam or electricity.

The Administrative Order issued on January 31, 2011, revised September 6, 2012, contains a schedule with numerous milestones. One milestone is the completion of a steam pipe line across the Craigie Dam/Bridge to Trigen's steam delivery system in Boston. Veolia is building the steam line which is almost complete with testing of the pipe line to occur in the next few weeks.

The next major milestone is the Notice to Proceed for the air cooled condenser (ACC) and back pressure steam turbine (BPST) which is on target by December 31, 2013. The engineering and design process is complete and now it is in the request for proposal phase. All local permits have been obtained.

The facility provides quarterly progress reports to EPA and the state concerning the activities taken during the quarter to achieve compliance with the Administrative Order. The last report sent July 30 covered the period of April 1 through June 30. According to Mr. Konary, the next quarterly report will be out by the end of October.

Broad Canal water is used for once pass through cooling water for the three condensers. The canal water is pumped with 6 pumps and filtered through 3 screen houses. The intake screen cleaning backwash water is discharged back to the canal through outfalls 005, 006, and 007. Intake water screen #3 had corrosion near a previous metal patch. No intake water was passing through the screen during the inspection. The facility needs to evaluate the screen for leaking while in operation and determine if additional repairs are warranted.

The internal wastewater that the permit identifies as outfall 009 is currently discharged to the city sewer (MWRA permit # 09-002256). This includes the reject water from the reverse osmosis system and boiler blow down.

Currently only cooling water is discharged to the Charles River in two submerged pipes (~42 inch diameter). The permit identifies this discharge as "any combination of outfall serial numbers 001, 002, 003, and 004: ...". There are four pipes after the three condensers which then combine into the two pipes discharging to the Charles River. The facility designates the 2 outfall pipes to the Charles River as 001 and 002 for discharge self monitoring data reporting.

The condensers are physically cleaned by manually brushing and hand picking clean of debris. The facility has not had problems with condenser fouling. The schedule varies depending on use and can be more frequent than annually. Chemical cleaning of the

condensers is not done. According to Mr. Murphy, the condenser cooling water has not been chlorinated for at least 4 years.

Temperature is monitored continuously from the raw water intake and the 2 effluent discharge pipes. All sensor locations have back up temperature sensors operating. The two effluent pipe temperature sensors are approximately 200 feet from the discharge end of the pipes. Once per year or more frequent if a problem occurs the temperature sensor probes are removed and temperature calibration checked at 5 points.

Temperature reading are obtained every second and stored. When the facility is generating electricity the operator in the control room has a visual screen showing the change in temperature from the intake to the discharge. The typical rise in temperature is between 13 F and 17 F. There are audible alarms at 18 F rise and 19 F rise for the 15 minute averages in temperature monitoring. There is also an audible alarm for approaching the 105 F limit. The permit temperature limit is 20 F rise in temperature or 105 F maximum 1 minute average discharge. The facility has utilized the 2 options of dropping load (reduce electricity production) and waste steam to the atmosphere to stay within the permit limits.

There are 2 pumps that transfer cooling water from the effluent 2 pipes for sampling. There is a spigot on each line that is opened and run into a gallon bucket before grab sampling for pH and total residual chlorine.

The pH meter is calibrated 1/week by the instrumentation group with pH 4 and pH 10 buffers and checked with pH 7 buffer. The pH 7 buffer check is not recorded. The pH probe is stored in tap water. EPA recommended storage of the probe in pH storage solution and recording of pH buffer checks daily since there is a daily requirement for pH monitoring.

Total Residual Chlorine (TRC) is analyzed by the DPD method using a HACH pocket colorimeter. The facility monitors TRC when the Broad Canal water is greater than 50 F. The incoming canal water TRC has ranged from 0.02 mg/l to 0.49 mg/l (on June 28, 2013). The facility said there is a city culvert that discharges into the canal upstream of the intake water location. EPA recommended evaluating in the future whether any detectable TRC in the intake water is real since at 0.49 mg/l TRC there would be a very noticeable pink color after the DPD reagent has been added to the sample.

The July 2013 DMR monitoring data stored on the facility computer system was reviewed. No issues were found.

Storm Water Permit

The facility has the storm water permit # MAR05EBT2. A storm water pollution prevention plan (SWPPP) was on site and dated November 7, 2011.

SPCC Plan

The facility has a PE signed SPCC plan dated October 6, 2011, and a FRP dated December 2, 2011.

Closing Conference

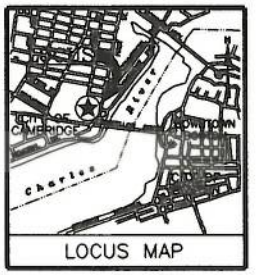
At the end of the inspection, we conducted a closing conference with Mr. Richards, Mr. Reynolds, and Mr. Murphy. The following topics were discussed:

- 1 photograph was taken of the sampling location for the 2 outfall discharge pipes to the Charles River.
- Raw canal water TRC ranges from 0.02 to 0.49 mg/l by DPD method. Evaluate in the future whether the measurements are real. Since there is a city culvert discharge upstream of the facility intake, there could be TRC in the canal water.
- Intake water screen #3 has corrosion adjacent to an older patch on it. Evaluate the need for any additional repairs when unit running.
- Verify with instrumentation group that pH buffers have not expired before use since the operations personnel do the buffer ordering.
- pH meter probe is stored in tap water and would be better to store it in pH probe storage solution.
- pH meter calibrated 1/week while daily pH measurements are done. Need at least pH buffer checks (calibration if buffer checks out of range) of the pH meter before each daily measurement.
- pH 4 and 10 buffer calibration recorded OK but need to record the pH 7 buffer.

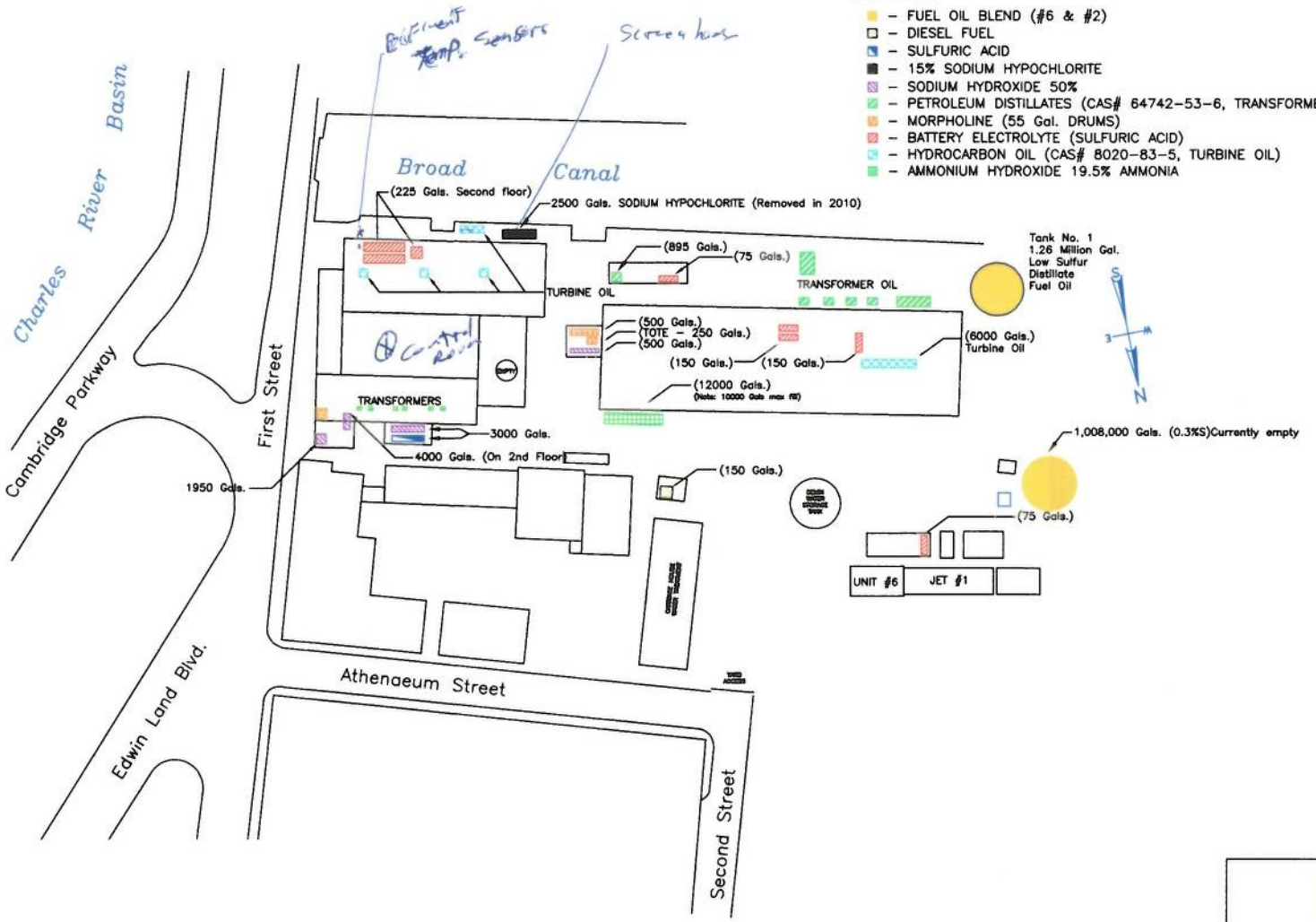
GenOn Kendall 9/4/13 @ 1202
Cooling water sampling location

LEGEND

- – FUEL OIL BLEND (#6 & #2)
- – DIESEL FUEL
- – SULFURIC ACID
- – 15% SODIUM HYPOCHLORITE
- – SODIUM HYDROXIDE 50%
- – PETROLEUM DISTILLATES (CAS# 64742-53-6, TRANSFORMER OIL)
- – MORPHOLINE (55 Gal. DRUMS)
- – BATTERY ELECTROLYTE (SULFURIC ACID)
- – HYDROCARBON OIL (CAS# 8020-83-5, TURBINE OIL)
- – AMMONIUM HYDROXIDE 19.5% AMMONIA



LOCUS MAP



HAZARD ZONE MAP – GENON KENDALL, LLC

Notes:

1. This drawing recreated from Cambridge Electric Co. drawing SARA-RTS Revision 1 dated 1983. Changes include name change, removal of #2 fuel oil, and addition of transformer and turbine oils.

REV.	DESCRIPTION	DATE	APPR.
	REVISION		

GenOn Kendall, LLC

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KENDALL STATION

SITE PLAN AND LOCUS MAP

SCALE:	DATE	DRAWN	CH'KD.	APPR.	DRAWING NO.	REV.
None	02/16/09	JCN	LA	GJH	SARA-RTS	3